12402
Postel

Network Working Group
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John M. McQuillan
Bolt Beranek and Newman
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Removal of the 30-Second Delay When Hosts Come Up

The IMP currently delays accepting input from a Host for 30 seconds after the Host has come up. This delay serves to allow the fact that the Host is up to propagate through the network. The fundamental problem is that a Host must not be permitted to communicate with a second Host until the second Host (actually its IMP) has been made aware that the first Host is up. Otherwise, one Host may come up and send a "hello" message to another Host, whose reply is discarded by the IMP because it is for a dead destination.

All this reasoning is based on a dead destination detection mechanism at the source IMP. The 30-second delay is based on the worst-case propagation delay for routing information in the network, so that every potential source IMP can update its host up/down table. There are several drawbacks to this scheme:

1. Hosts should not have to wait the worst-case time of 30 seconds to send to Hosts at their IMP or nearby in the network.
2. The operation of half-duplex interfaces is made even more complicated because of the startup delay.
3. The timeout period of 30 seconds is really a function of network topology and we would like to be able to change it when necessary as the network expands.

We propose to eliminate the 30-second delay altogether. The IMP subnetwork will detect messages for a dead Host at the destination IMP instead of at the source IMP. There is no delay

involved for an IMP to sense when its own Hosts come up, so that it can always make the correct decision about whether to give a message to one of its Hosts or to return a destination dead message to the source Host. Under this new scheme, whenever the IMP's ready line is up it is ready to accept input from its Hosts without delay. Several comments on this change should be noted:

1. No change to Host software should be necessitated by this change. The Host may attempt to send a message to the IMP as soon as it brings its ready line up, or it may delay for a long time. In either case, the IMP will take the message. As before, as soon as the Host has brought up its ready line, it must accept messages from the IMP.

2. The Hosts may wish to remove any delays they have programmed into their startup routines, since such delays are no longer necessary.

3. Destination dead messages will be returned as before with two differences. There will be more delay between the receipt of the message at the IMP and the return of the dead destination message because it must travel through the network. For the same reason, if many messages are sent to dead Hosts, the dead destination messages may come back out of order.

The Host personnel responsible for the IMP software at each site should check that this proposed change will not adversely affect them. If no adverse comments are received, this change will go into effect on Tuesday morning, December 12 at the regular IMP software release time.